



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,355	05/24/2000	Hiroshi Kowaki	39487/DBP/A400	4894
23363	7590	02/27/2006	EXAMINER	
CHRISTIE, PARKER & HALE, LLP			LAO, LUN S	
PO BOX 7068			ART UNIT	
PASADENA, CA 91109-7068			PAPER NUMBER	
			2644	

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/578,355

Applicant(s)

KOWAKI, HIROSHI

Examiner

Lun-See Lao

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. This action is response to the amendment filed on 06-03-2005. Claims 19, 25, 30, 33, 38, 41, 46 and 49 have been amended and claims 1-18,22- 23, 31, 39 and 47 have been canceled and claims 55-58 have been added. Claims 19-21, 24-30, 32-38, 40-46 and 48-58 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12-05-2006 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2644

invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

4. Claims 19-21, 24, 30, 32 and 38, 40, 46, 48, 54-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishima (US PAT. 4,574,391) in view of Hoellermann (JP 07-087598).

Consider claim 19, Morishima teaches an audio system for reproducing a number of independent original audio signals (see fig.2, (9-12)), wherein the number of independent original audio signals is at least three and is equal to the number of reproduction points (3-7) and wherein the independent original audio signals comprise a bass audio signal (low frequency, such as, woofer, 3) that is not to be delay, the audio system comprising (see col.2 line 13-66):

at least one processing circuit for producing a processed sound signal from said independent original audio signals (see fig.2 (9-12)), by branching a signal from one of said independent original audio signals (see fig.2 (9-12)), branched audio signal (see fig.2), and attenuating (29,30) the amplitude level of said delayed audio signal (24,26, (phase shifter)); and at least one processing circuit for adding said processed sound signal to one of said independent original audio signals (see fig.2 (9-12)) other than the independent original audio signals (see fig.2 (9-12)) from which said processed sound signal is produced (see col.3 line 1-col.4 line 42), but Morishima does not clearly teach delaying said branched audio signal in accordance with at least one distance between said reproduction points; and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

However, Hoellermann teaches delaying a branched audio signal in accordance with at least one distance between reproduction points (see figs. 1-2 and abstract, constitution and detailed description page 3 [0024]-page4 [0026]); and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect) (see figs. 1-2 and detailed description page 1 [0004]- [0005])

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hoellermann into Marishima to provide the sound transit time from each loudspeaker to a listening place is established, and this time delay is solved by the composition automatically set up so that the sum of the sound transit time and time delay set up, respectively become equal to all loudspeakers.

Consider claim 38, it is the method claim corresponding to apparatus claim 19. See previous apparatus claim 19 for rejection.

Consider claims 20-21, Morishima teaches that an audio system of the independent original audio signals (see fig.2 (9-12)) comprise at least one front signal, at least one rear signal and a center signal (see fig.2 (9-12)); said at least one processing circuit for producing a processed sound signal comprises at least one front processing circuit (9) for producing at least one processed front sound signal (10) and a center processing circuit (11) for producing a processed center sound signal (see fig.1,(3)); said at least one front processing circuit (11) produces said at least one processed front sound signal by branching said at least one front signal, delaying (said

Art Unit: 2644

branched at least one front signal (11) in accordance with at least one between at least one reproduction point associated with said at least one front signal (11) and at least one other reproduction point (3-7), and attenuating (29-30) the level of said delayed at least one front signal (11); and said at least one center processing circuit (6) produces a processed center sound signal by branching said center signal, delaying (24,26,(phase shifter)); said branched center signal in accordance with at least one between a reproduction point associated with said center signal (6) and at least one other reproduction point, and attenuating the level of said delayed(24,26,(phase shifter)); center signal (6); and said at least one processing circuit for adding (16,18,20,22,36 (mixer)) said at least one processed front sound signal (11) and said processed center sound signal (6) to said at least one rear audio signal (12) (see col.3 line 1-col.4 line 42); and an audio system of least one rear signal (see fig.1, (6)) comprises a rear left signal (7) and a rear right signal (6); and said at least one processed front sound signal (4) comprises a processed front left signal (4) and a processed front right signal (5 and see col. 2 lines 1-12); but Morishima does not clearly teach delaying said branched audio signal in accordance with at least one distance between said reproduction points; and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

However, Hoellerman teaches delaying a branched audio signal in accordance with at least one distance between reproduction points (see figs. 1-2 and abstract, constitution and detailed description page 3 [0024]-page4 [0026]); and wherein said at

Art Unit: 2644

least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect) (see figs. 1-2 and detailed description page 1 [0004]- [0005])

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hoellermann into Morishima to provide the sound transit time from each loudspeaker to a listening place is established, and this time delay is solved by the composition automatically set up so that the sum of the sound transit time and time delay set up , respectively become equal to all loudspeakers.

Consider claim 24, Morishima teaches a processing circuit for producing a processed sound signal further corrects a frequency characteristic of said processed sound signal (see fig.2 and see col.3 line 1-col.4 line 42);

Consider claim 30, Morishima teaches an audio system for reproducing a number of independent original audio signals (see fig.2, (9-12)) each of which is reproduced at a number of reproduction points (3-7), wherein the number of independent original audio signals (9-12) is at least three and is equal to the number of reproduction points (3-7) and wherein the independent original audio signals comprise a baas audio signal (low frequency, such as, woofer,3) that is not to be delay, the audio system comprising (see col.2 line 13-66):

at least one processing stage for producing a processed sound signal from said independent original audio signals (see fig.2 (9-12)) to be reproduced at a plurality of predetermined reproduction points located far from a given reproduction point (3-7)

Art Unit: 2644

said at least one processing stage comprising: a plurality of branch-processing stages (see fig.2); a first add-processing stage (16,18,20,22,36 (mixer)); and a processed sound generating stage (3-7);

said branch-processing stages each branching a signal from one of independent said original audio signals (see fig.2 (9-12));

said first add-processing stage adding (51) said branched audio signals to each other, said processed sound generating stage delaying (such as, phase shifter, 24,26)) said added audio signal and attenuating the level of said added (16,18,20,22,36 (mixer)) audio signal;

at least one distribution-processing stage for distributing said processed sound signal to one or a plurality of audio signals (see fig.2 (9-12)) to be reproduced at said predetermined reproduction points (3-7) (see col.3 line -64); and

at least one second signal add-processing stage(16,18,20,22,36 (mixer));
, each for adding (16,18,20,22,36 (mixer)); said distributed signals to one of said independent original audio signals (see fig.2 (9-12)) other than the independent original audio signals (see fig.2 (9-12)) from which the signals are branched (see co.3 line 1- col.4 line 42), but Morishima does not clearly teach that said processed sound generating stage delaying said added audio signal is performed in accordance with the distance from said given reproduction point to said predetermined reproduction points located far from said given reproduction point; and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

Art Unit: 2644

However, Hoellermann teaches that a processed sound generating stage delaying an added audio signal in accordance with the distance from a given reproduction point to predetermined reproduction points located far from the given reproduction point (see figs. 1-2 and abstract, constitution and detailed description page 3 [0024]-page4 [0026]); and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect) (see figs. 1-2 and detailed description page 1 [0004]- [0005])

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hoellermann into Morishima to provide the sound transit time from each loudspeaker to a listening place is established, and this time delay is solved by the composition automatically set up so that the sum of the sound transit time and time delay set up, respectively become equal to all loudspeakers.

Consider claim 46, it is the method claim corresponding to apparatus claim 30. See previous apparatus claim 30 for rejection.

Consider claim 32, Morishima teaches a processing stage (see fig.2, (attenuator, 29-30)) further corrects a frequency characteristic of said processed sound signal (see col.3 lines 1-64).

As to claim 48, there is the method claims of claim 32 and thus note the rejection of claim 32, respectively.

Consider claim 40, Morishima teaches that the producing a processed sound signal comprises correcting (see fig.2, (attenuator, 29-30)) a frequency characteristic of said processed sound signal (see col.3 line 1-col.4 line 42).

Consider claim 54, Hoellermann teaches that the sound signals for the reproduction points are adjusted in accordance with at least one distance between the reproduction points and a listener (see figs. 1-2 and abstract, constitution and detailed description page 3 [0024]-page4 [0026]).

Consider claim 55, Morishima teaches that an audio system, wherein said at least one processing circuit for producing a processed sound signal attenuates (see fig.2, (29,30, attenuator)) the amplitude level of said delayed (such as, phase shifter, 24,26)) audio signal in accordance with a predetermined stereo audio effect (see figs 1-2 and col. 2 line 13-col. 3 line 58).

Consider claim 57, it is the method claim corresponding to apparatus claim 55. See previous apparatus claim 55 for rejection.

Consider claim 56, Morishima teaches an audio system, wherein said at least one processing stage attenuates(see fig.2, (29,30, attenuator)) the level of said delay (such as, phase shifter, 24,26)) audio signal in accordance with a predetermined stereo audio effect (see figs 1-2 and col. 2 line 13-col. 3 line 58).

Consider claim 58, it is the method claim corresponding to apparatus claim 56. See previous apparatus claim 56 for rejection.

Art Unit: 2644

5. Claims 25-29, 33-37, 41-45, 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishima (US PAT. 4,574,391) as modified by Hoellermann (JP 07-087598) as applied to claims 19, 30, 38 and 46 above, and further in view of Kuusama (US PAT. 6,332,026).

Consider claims 25 and 33, Morishima as modified by Hoellermann does not clearly teach that the independent original audio signals are six audio signals and include an audio signal to be reproduced at a center front position in an audio space, audio signals to be reproduced on a left front side and a right front side in an audio space, audio signals to be reproduced on a left rear side and a right rear side in an audio space, and an audio signal of low frequency.

However, Kuusama teaches that the independent original audio signals are six audio signals (see fig.3 (L, R, LS, RS, C, S) and include an audio signal to be reproduced at a center front position (19) in an audio space, audio signals to be reproduced on a left front side (17) and a right front side (18) in an audio space, audio signals to be reproduced on a left rear side and a right rear side (surround channel) in an audio space, and an audio signal of low frequency (19)(see col.4 line 30-col.5 line 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Morishima as modified by Hoellermann with the teaching of Kuusama to provide a better surrounding sound system.

Consider claims 41 and 49, these are the method claims corresponding to apparatus claims 25 and 33. See previous apparatus claims 25 and 33 respectively for rejections.

Consider claims 26-29 and 34, Kuusama teaches an audio system of a device for supplying said six audio signals is a multichannel player unit (such as laserdisc player and hifi-VCR) for reproducing audio data recorded on a recording medium by a multichannel recording system (see col.1 lines 9-24); and a case where said six audio signals are recorded on said recording medium to be reproduced by said multichannel player unit (such as laserdisc player and hifi-VCR); processed sound signals associated with said audio signals to inherently be reproduced at said center front position and on said left and right front sides(see fig.3, L, R), are added (6) to said audio signals to be reproduced on said left and right rear sides (20, surround sound channel); and processed sound signals associated with said audio signals to be reproduced on said left and right rear sides (LS and RS), are added (6) to said audio signals to be reproduced on said left and right front sides (17,18) and are added (6) to said audio signals to be reproduced at said center front position (21) (see col.4 line 54-col.5line 22); and an audio system further comprising: a switch (see fig.3, (10-12)) for setting a priority mode to determine a listening point in said audio space which receives the optimum sound, wherein the amplitude levels of said audio signals at said center front position, on said left and right front sides (17,18) and on said left and right rear sides (20, surround channel) are changed in accordance with the setting of said switch (see col.4 line 30-col.5 line 29).

Consider claims 42 and 50, these are the method claims corresponding to apparatus claims 26 and 34. See previous apparatus claims 26 and 34 for rejection.

Consider claims 35-36, Kuusama teaches an audio system of a case where said six audio signals (see fig.3 (L, R, LS, RS, C, S) are recorded on said recording medium to be reproduced by said multichannel player unit (see col.1 lines 13-25), audio signals to be reproduced at said center front position (c) and on said left and right front sides, are added (6) to audio signals to be reproduced on said left and right rear sides (20, surround channel), respectively, and audio signals to be reproduced on said left and right rear sides (LS, RS) are added to the audio signals to be reproduced on said left and right front sides (17,18) and at said center front position (21), respectively (see col.4 line 30-col.5 line22).

Consider claim 37, this is the method claim corresponding to apparatus claim 29. See previous apparatus claim 29 for rejection.

Consider claims 43-44, Kuusama teaches a method of reproducing audio signals of the six audio signals (see fig.3 (L, R, LS, RS, C, S) are recorded on said recording medium reproduced by said multichannel player unit (see col.1 lines 13-25), the method further comprising: adding (see fig.3,6) processed sound signals associated with said audio signals to be reproduced at said center front position (c) and on said left and right front sides to said audio signals to be reproduced on said left and right rear sides (LS RS); and adding (6) processed sound signals associated with said audio signals to be reproduced on said left and right rear sides (20, surround channel) to said audio signals

Art Unit: 2644

to be reproduced on said left and right front sides (17,18) and to said audio signals to be reproduced at said center front position (21)(see col.4 line 30-col.5 line22).

Consider claims 45 and 53, Morishima teaches a method of reproducing audio signals of further comprising:

setting a priority mode (see figs.1-2) to determine a listening point in said audio space which receives the optimum sound, wherein the

amplitude levels of said audio signals at said center front (3) position, on said left (4) and right (5) front sides and on said left and right rear sides (6,7) are changed in accordance with the setting of said mode (see col.2 line 1-66).

Consider claims 51-52 , Kuusama teaches a method of reproducing audio signals of six audio signals(see fig.3 (L, R, LS, RS, C, S) are recorded on said recording medium reproduced by said multichannel player unit, the method further comprising (see col.1 line 13-25):

adding (6) audio signals to be reproduced at said center front position(21) and on said left and right front sides (L, R) to audio signals to be reproduced on said left and right rear sides(20, surround channel), respectively; and

adding (6) audio signals to be reproduced on said left and right rear sides (20, surround channel) to audio signals to be reproduced on said left and right front sides (17,18) and at said center front position(c), respectively (see col.4 line 53-col.5 line22).

Response to Arguments

6. Applicant's arguments with respect to claims 19-21, 24-30, 32-38, 40-46 and 48-58 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Edgar (US PAT. 5,278,909) is cited to show other related an audio system.

8. Any response to this action should be mailed to:

Mail Stop ____ (explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(703) 872-9306

Hand-delivered responses should be brought to:

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian, can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding

Art Unit: 2644

should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao, Lun-See L.S.
Patent Examiner
US Patent and Trademark Office
Knox
571-272-7501
Date 02-17-2006



HUYEN LE
PRIMARY EXAMINER